

OPERATING INSTRUCTION



CSGB - 01/02

Code **PM.7.002505.EN**

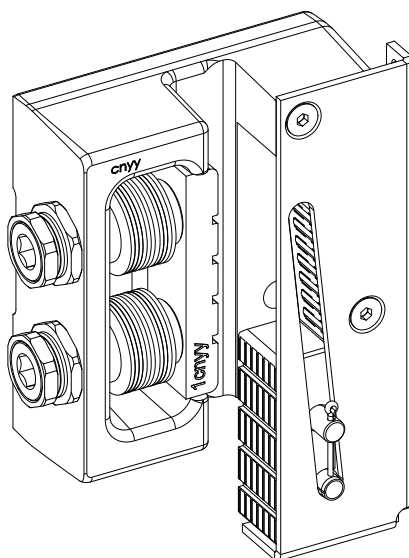
Version **H**

Date **15.05.2021**

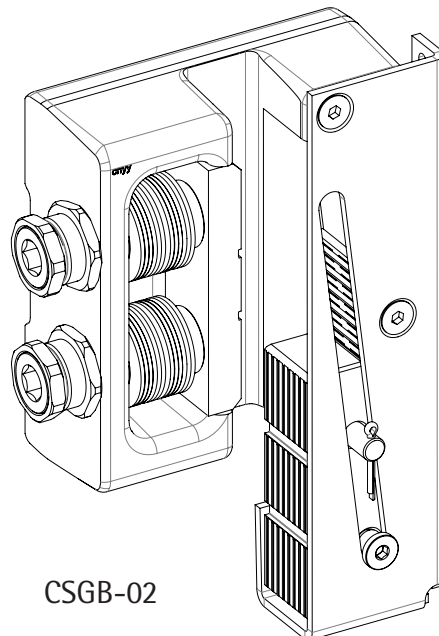


* P M . 7 . 0 0 2 5 0 5 . E N \$ 1 1 1 *

Progressive Type Safety Gear



CSGB-01



CSGB-02

Product manufacturer reference can be found on the product type label. For any support or further questions please contact your trading office.





Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.002
Datum/date 15.05.2021
Stand/Version H
Geprüft/Approved WAT/MZE

Content	Page
1 General information prior to installation	.003
1.1 Description and functions	.003
1.2 Liability and guarantee	.004
1.3 Safety precautions	.004
1.4 Preparation	.005
1.5 Advice for when working on safety components	.005
1.6 Content of supply	.006
2 Name plate, designation, identification	.007
2.1 Labelling according to ASME A17.1	.008
3 Installation and adjustment	.009
3.1 Fastening of the safety gear	.009
3.2 Movement of the safety gear	.009
3.3 Alignment of the safety gear	.0010
3.4 Safety gear linkage	.0010
3.5 Mounting to the car frame	.010
3.6 Gripping wedge synchronization and adjustment	.011
4 Function testing	.012
4.1 Static functions test	.013
4.2 Dynamic functions test	.014
4.2.1 Gripping test for car safety gear	.014
4.2.2 Gripping test for counterweight safety gear	.015
4.2.3 Checking safety gear, car and counterweight and returning the elevator to normal drive	.016
4.2.4 Visual checks after a safety gear test	.016
4.3 Braking mark	.017
4.3.1 Measuring of braking mark	.017
4.3.2 Check of gripping distance "s"	.017
5 Maintenance, inspection and repair	.018
5.1 Maintenance and inspection	.018
5.1.1 General	.019
5.1.2 Maintenance and inspection check list	.019
5.2 Periodical tests	.019
5.3 Operational life time of the safety gears	.020
5.4 Carrying out repairs	.020
5.5 Disposal of waste	.021
5.6 Spare parts	.021
ANNEX A	.023

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.003
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

1 General information prior to installation

1.1 Description and functions

CSGB-01/02 is a combination of disk springs and braking elements, which are activated by a movable tripping wedge. The braking force is adjustable by the disk spring assembly. There is always a pair of safety gears used.

The basic function of the safety gear is, if the lift car exceeds its nominal speed upon descent, the overspeed governor cuts in when its tripping speed is reached and triggers the safety gear on the lift car via the governor rope. The lift car is brought to a standstill and clamps onto the guide rails.

The setting is carried out in the factory (according to the load and rail conditions) and sealed. Later adjustments will not be necessary and are in any case prohibited for safety reasons.

The progressive safety gear is released by lifting the car or counterweight. This returns the clamped tripping wedge to its initial positions.

The operating range is defined as follows:

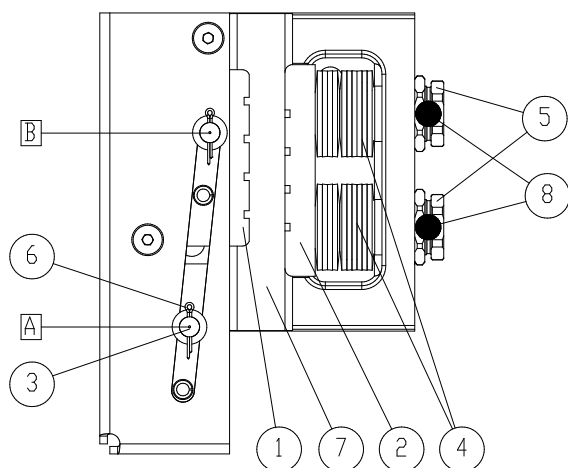
Type	CSGB-01	CSGB-02	
max. tripping speed [Vmax] (Guide rail)	2,37 m/s (drawn)	- (drawn)	
	2,63 m/s (machined)	3,23*) m/s (machined)	3,83 m/s (machined)
min. Mass to be gripped [Fmin]	575 kg	1.130 kg	1.130 kg
max. Mass to be gripped [Fmax]	2.700 kg	3.500 kg	2.800 kg
Width of guide rail head [k]	9 / 10 / 15,88 / 16mm		
Temperature during operation	-5 ... +55°C **)		
Temperature during storage	-40 ... +70°C		
max. Air humidity	95% / +25°C 93% / +40°C		

*) machined dry: 3,55m/s

**) For lifts according EN81: +5...+40°C, General temperature range if no tighter range is stated in the local valid code: -5...+55°C



Care must be taken that there is no ice on the guide rails during normal run!



1. Tripping wedge
2. Brake lining
3. Fixing for lifting lever

4. Disk spring assembly
5. Adjustment screw
6. Split pin
7. Block
8. Seal (sealing wax)

- A Normal position of the fixing for lifting lever
 B Gripping position of the fixing for lifting lever

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.004
Datum/date 15.05.2021
Stand/version H
Geprüft/approved WAT/MZE

1.2 Liability and guarantee

This instruction handbook is written for people who are familiar with lift servicing and installation. Sufficient knowledge of lifts is essential.

WITTUR does not take responsibility for damage caused by improper handling, or for damage caused as a result of actions other than those stated in these operating instructions.

The WITTUR guarantee may be voided if parts other than those described in these instructions are installed.

Unless stated otherwise, the following is not permissible due to technical safety reasons:

- The use of components other than those installed
- Carrying out modifications, of any kind on the safety gear
- Installing two different brake heads with different index numbers together
- Destruction of the seal



If the seal is shacked, the complete set of safety gears has to be replaced.

- Combining different component types
- Installing progressive safety gears intended for other employment than that stipulated
- Carrying out faulty or improper maintenance or inspection checks
- Using unsuitable accessories, spare parts or operating material which has neither been released by the WITTUR Company nor consists of original WITTUR spare parts

1.3 Safety precautions

Installers and servicing personnel are fundamentally responsible for their safety while working. The monitoring and following of all valid safety rules and legal conditions is required in order to prevent personal injury and damage to materials during installation, maintenance and repair work. This refers especially to the corresponding accident prevention rules.

Important safety advice and danger warnings are emphasized with the following symbols:



General danger warning



High danger risk warning (i.e. crushing edge, cutting edge etc.).



Risk of damage to machinery parts (i.e. due to incorrect installation, or such like).



Important information sign

These operating instructions belong with the whole installation and must be kept in a safe place at all times (i.e. machine room).

The proper assembly and installation of WITTUR safety gears requires correspondingly well trained fitting engineers. The responsibility of training lies with the company appointed to carry out the work.

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.005
Datum/date 15.05.2021
Stand/version H
Geprüft/approved WAT/MZE

Before starting installation work:



Only properly trained personnel may carry out work, or be allowed access to the installation site.

- Attach safety devices to guard against falling (platform or harnesses)
- Cover any floor openings
- Secure installation tools or objects against accidental falling
- Lift shaft openings should be cordoned off and suitable warning signs should be erected when working in shaft openings
- Work involving electrical equipment should only be carried out by an electrical engineer or qualified personnel.

1.4 Preparation

Before beginning installation work it is in your own interest to ascertain the constructional and spatial conditions. Where (workshop or on site) and when which installation operations can or must be carried out. It is therefore recommended to take all the given circumstances into account and to plan the various operational sequences in advance, rather than carrying them out prematurely and in an unconsidered manner.

On the receipt of the delivery, the goods or components should be checked for correctness and completeness with the order sheet.

The following should be checked also:

- the factory and order number must correspond
- the details on the name plate must correspond to those on the order
- the elevator speed
- the width and type of guide rail used
- the total load (mass to be gripped)

1.5 Advice for when working on safety components

Safety gears are classified as safety components. It is most important that the standards and guidelines described in this section are complied with as well as those given in the rest of this operating manual.



These instructions, and especially the section on safety precautions, should be read and fully understood before work begins.

Safety devices require special attention. It is compulsory that they function perfectly to ensure danger free installation operation.

Safety devices which can only be adjusted after installation must take place immediately after installation.

Operation of safety devices installed ex-works must be tested immediately.

If it is necessary to disassemble a safety device during servicing or repair, they should be reassembled and checked with the required tests, as soon as the work has been carried out.

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.006
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

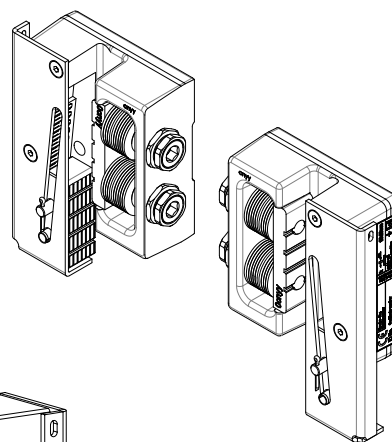
1.6 Content of supply

After delivery, check the safety gear for damage and for full delivery of parts. The content of supply covers:

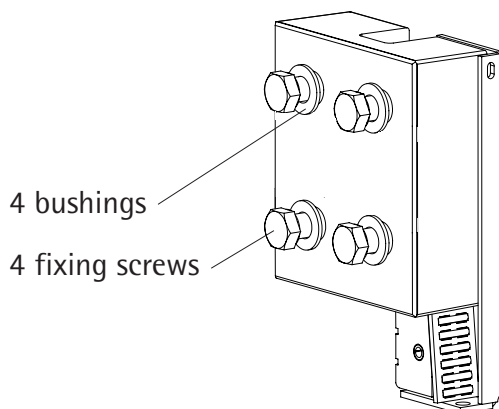
- Operating instructions manual



- One left handed and one right handed safety gear (pre-adjusted and sealed at the factory)

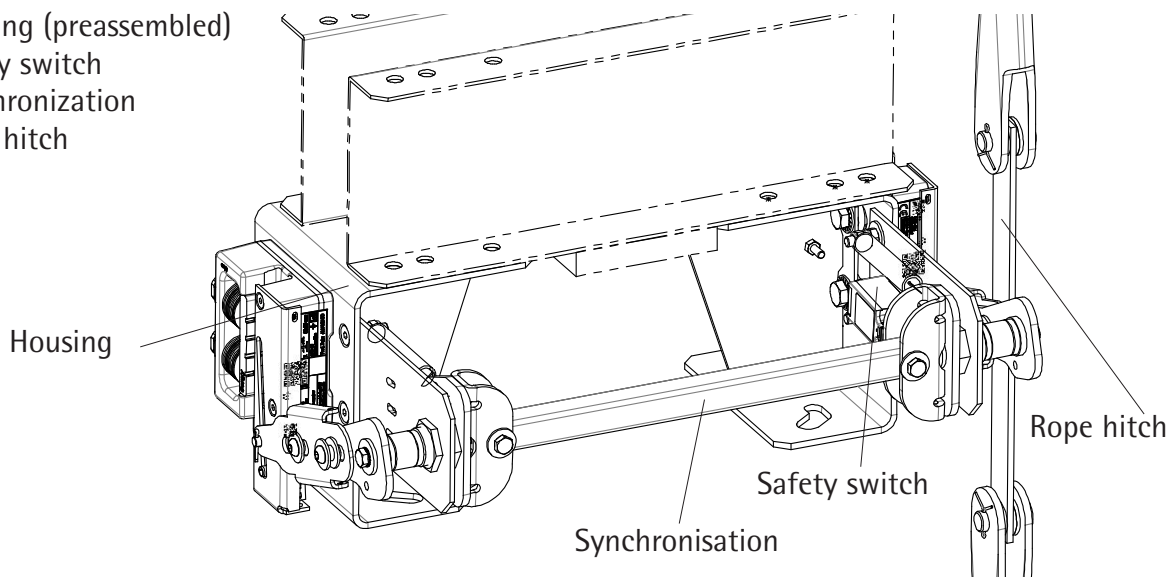


- Fixing material



Optional:

- Housing (preassembled)
- Safety switch
- Synchronization
- Rope hitch



Progressive Type Safety Gear


CSGB-01 / 02

Operating instructions



Blatt/sheet PM.7.002505.EN.007
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

2 Name plate, designation, identification

The safety gear identification indicators are located on the safety gear.

 The data on the name plate must be compared with ordering and the project documents.

The name plate gives following data:

WITTUR manufacturing base no. (see declaration of conformity)		Type	Mass to be gripped F _{max} (kg)		Tripping speed V _{max} (m/s)
Serial number		Traceability	F _{max} #### kg		0904433P01
Serial - No.: Serial number			V _{max} #.### m/s		
Elevator - No.: Elevator number			k  mm ###.## mm		
CE ID No. Certificate number			guide rail surface condition 		
WITTUR s.r.o. Priemyselná ulica 2747/7 96301 Krupina, Slovakia		EAC		Prod. Date: JJJJ-MM-DD	

Order number / Elevator number

CE- Type-examination number

Date of manufacture

Guide rail head width k (mm)

Guide rail conditions
 Type A (drawn)
 Type B (machined)
 oiled/ dry

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.008
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

2.1 Labelling according to ASME A17.1

For ASME A17.1 the same identification label as used for EN81 is included in delivery. In addition a metal tag is included.

The metal tag is according ASME A17.1 requirements which gives following data:

Type term of safety gear	SAFETY GEAR MODEL <input type="text"/>			
	TYPE <input type="text"/>			
Mass to be gripped Fmax (kg, lb)	MAX. LOAD Fmax	<input type="text"/>	KG	<input type="text"/>
	TRIP. SPEED Vmax	<input type="text"/>	M/S	<input type="text"/>
	ACTIV. FORCE	<input type="text"/>	N	<input type="text"/>
	MANUF.: WITTUR GMBH		604217H01	
			LB	FT/LB

Tripping speed
Vmax (m/s, fpm)

Required force to activate the safety gear
(N, lbf)

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.009
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

3 Installation and adjustment

3.1 Fastening of the safety gear

To fasten the safety gear the in the delivery included screws and bushings must be used. If this is not the case, note the following criterias:



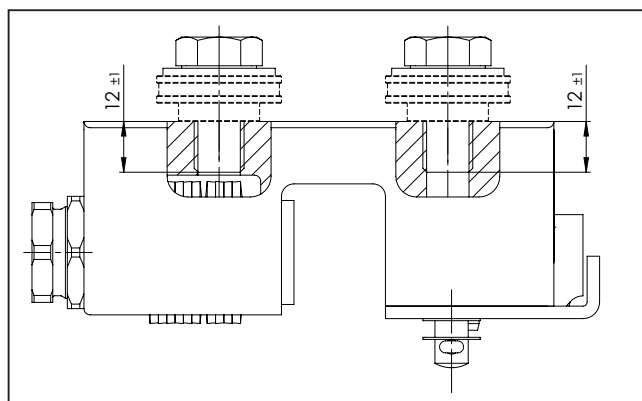
If the screws are too short (thread engagement $< 11\text{mm}$) a secure fixing of the safety gear isn't guaranteed.



If the screws are too long (thread engagement $> 13\text{mm}$) the proper function of the safety gear isn't guaranteed.



Shim washers can be used to adjust the thread engagement.



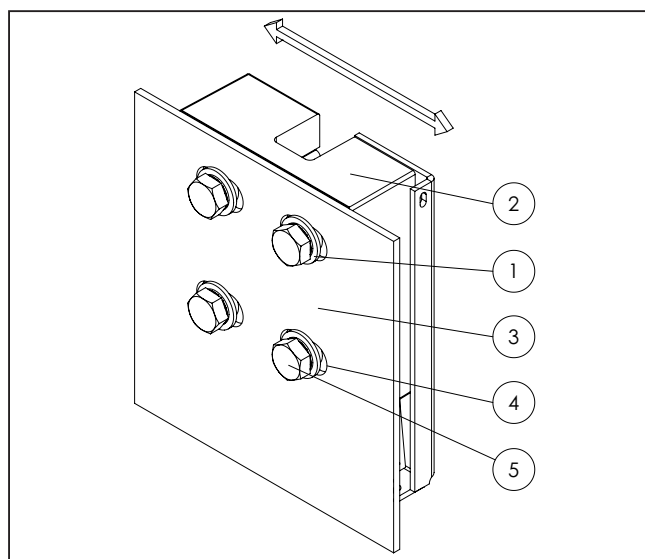
Observe tightening torque!
 Screw M12: 80 Nm

3.2 Movement of the safety gear

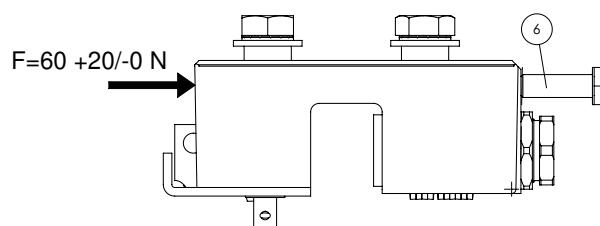


The safety gear must be able to move horizontally.

Therefore the delivered bushings must be used. Use this bushings (1) to fix the safety gear (2) on a fixing plate (3)^{*)} in slotted holes (4). So the safety gear can be screwed with the fixing screws and the safety gear can still move horizontally.



Additional the safety gear must be held in position with a spring^{*)} (force at installation length $60 + 20/-0\text{ N}$) and a variable adjustable stop collar (6) must be in the opposite side.



^{*)} not in the standard content of supply (with optional housing included in delivery)

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.0010
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

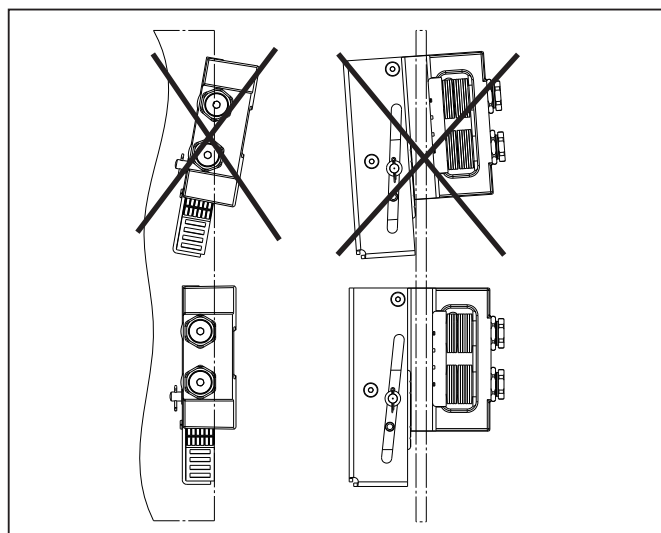
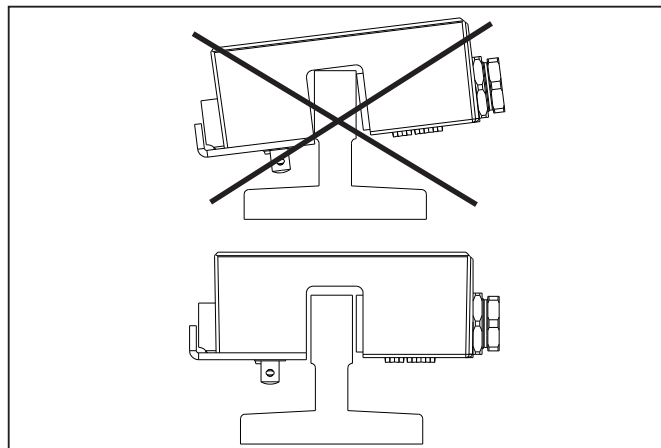
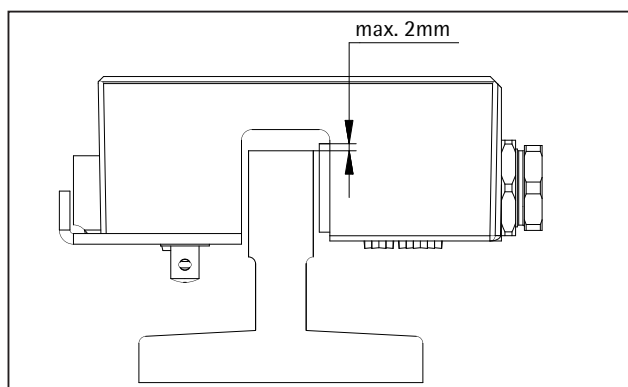
3.3 Alignment of the safety gear

The safety gear has to be well aligned in accordance to the guide rail.



The alignments have to be done implicitly, otherwise the following malfunctions may happen:

- unintended gripping of the gripping wedge
- brake force performance impaired

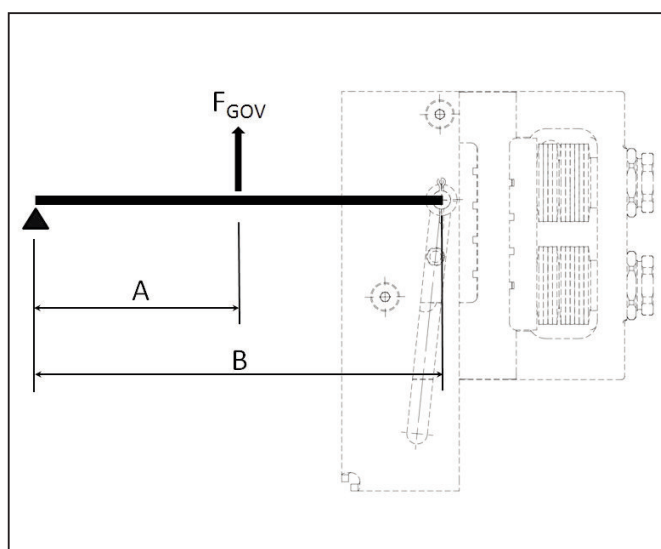


3.4 Safety gear linkage

The maximum activating force of the overspeed governor F_{GOVmax} is 4000N if $A \leq B/2$.



If governor force is $>4000N$ or $A > B/2$ a synchronisation with force limiter must be used.



Progressive Type Safety Gear

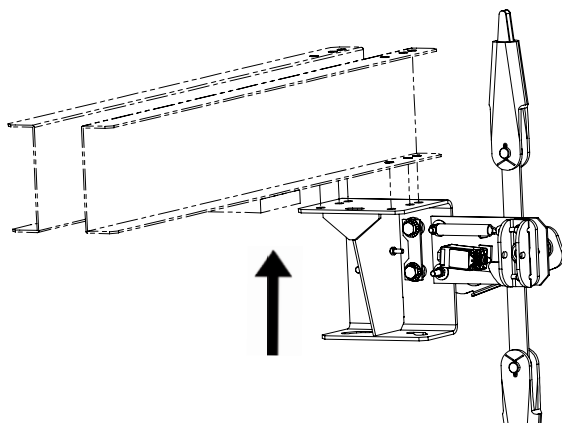
CSGB-01 / 02

Operating instructions

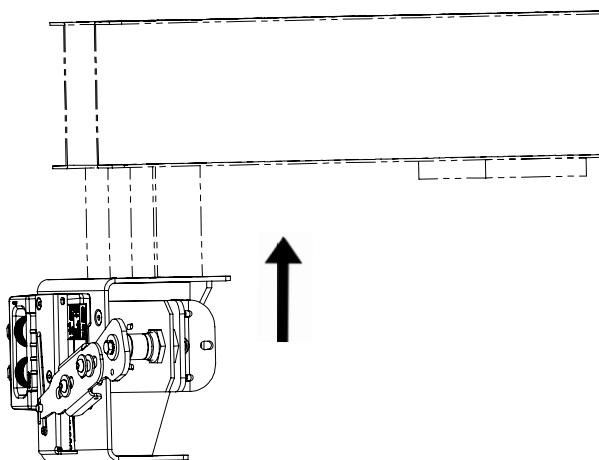
Blatt/sheet PM.7.002505.EN.11
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

3.5 Mounting to the car frame

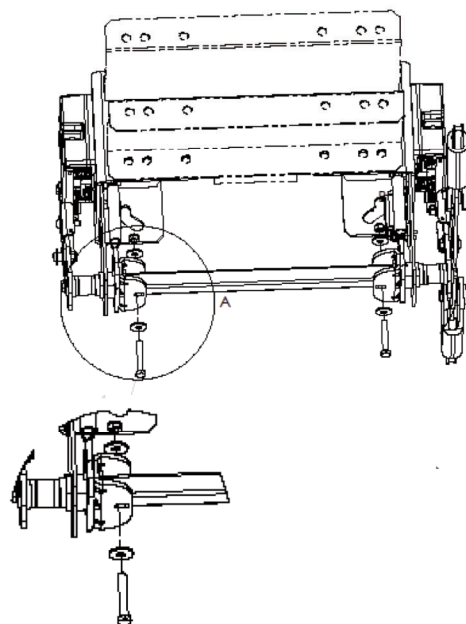
1) Fix first safety gear housing to the car frame



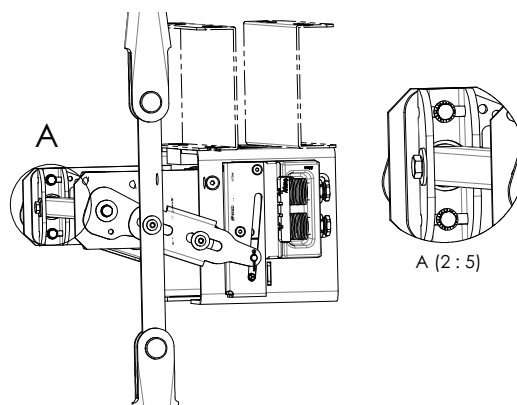
2) Fix second gear housing to the car frame



3) Fix synchronisation tube



4) Adjust the synchronisation left/right by positioning in the slot holes.



Progressive Type Safety Gear


CSGB-01 / 02

Operating instructions


Blatt/sheet PM.7.002505.EN.12
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

3.6 Gripping wedge synchronization and adjustment

After installation of the car frame and the guides, the correct centering and adjustment of the safety gear in accordance to the rails has to be done.

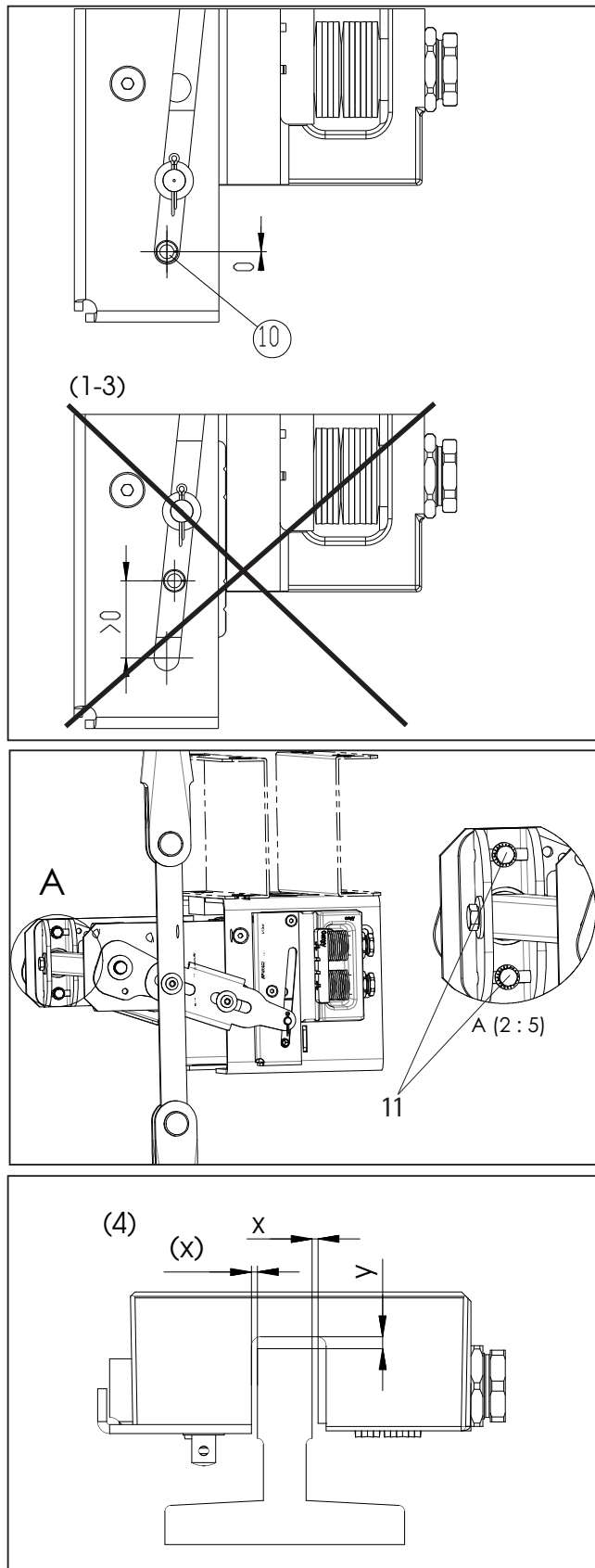
 When mounting the safety gear, observe the position of the overspeed governor rope. The position of the lifting lever of the rope at the safety gear cannot be changed if the safety gear is built-in.

- (1) Check that the tripping wedge is in the normal position (10).
 If necessary readjust by use of the screw (11) on the opposite side of the governor rope hitch.

 If necessary adjust the synchronization in accordance with the instructions for the car frame or the counter weight safety gear.
The adjustment screws of the synchronization must be easily accessible.

- (2) Activate the synchronization by hand and check that both safety gears are activated at the same time.
- (3) Check the horizontal movement of the safety gear to be sure that the brake lining is able to access the guide rail when the safety gear is activated.
- (4) Check the horizontal adjustment of the safety gear.

	CSGB-01	CSGB-02
x	2,5 +/-0,5	4 +/-0,5
y	4 +/-2	8 +/-2



Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.13
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

4 Function testing

Based on the proper installation of the elevator in compliance with all regulations, it can be assumed that the functionality of the system is guaranteed. Quality and function of the individual components are subject to strict controls and are tested before factory shipment. Prior to the initial acceptance and perhaps even prior to TÜV tests a functional review of the safety gear system should be performed.

First test run after installation



Before the first test run:

The protective coating of grease is to be carefully removed from the guide rails! Clean the guide rails!



The cleaning of the guide rail must be done with a disc brake cleaner or a similar fluid e.g. De-Solv-It 1000 degreaser,.... . It is important that the cleaning agent does not leave any residue on the guide rail. It is also not allowed to do mechanical cleaning like grinding. If the surface cannot be cleaned properly contact the manufacturer.



Clear all people and objects from the lift shaft before commencing the test run
Risk of crushing injuries!

The entire lift travel path should be slowly travelled (in inspection mode) before the functions tests. Attention should be paid to the clearance of all fastened parts, especially with regards to the guide brackets/safety gear devices. Find and remove any protruding bolts or other dangerous restrictions well in advance.

Preparations before tests:



When sliding guides shoes are used, clean the installation (the sliding guide shoes too) and if necessary also the safety gear. Then apply a thin coating of the guide rail oil to the guide rails or fill the oiler. When roller guide shoes are used the guide rail must not be lubricated at all.



The lubrication oil must not include high pressure additives. (see chapter 5.1.1)

- Check the activating force of the safety gear synchronization (it should be between 200 and 250 N). This value can be higher if the travel is over 75m. Calculate the minimum required force F_1 as follows:

$$F_1 = \text{mass of overspeed governor rope} \times \text{downwards acceleration} \times \text{safety factor (2)}$$

$$\text{e.g.: } F_{1 \text{ min}} = 100\text{kg} \times 1,5\text{m/s}^2 \times 2 = 300\text{N}$$



This is the minimum force which should be measured on the car frame safety gear synchronization to prevent unintended gripping. If the force is less than the retaining spring of the safety gear synchronization must be adjusted.



The operating force of the optional WITTUR synchronization is 200N - 250N. This force can not be adjusted on site.

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.14
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

- Check the tripping force of the overspeed governor F_{GOV} :

This force must be at least twice as high as the force measured on the safety gear synchronization.

e.g.: $F_1 = 300N \Rightarrow$
 $F_{GOVmin} = 2 \times F_1 = 2 \times 300 = 600N$



The maximum activating force F_{GOVmax} of the overspeed governor rope is 4000N (see chapter 3.4).

4.1 Static functions test

The function of the safety gear is to be checked with empty car and at lower speed before the real safety gear test is performed.

- Activate the safety gear actuating lever (or the overspeed governor rope as well by means of the tripping function if available) manually. At the same time, use the recalldrive to gradually lower the car or counterweight.
- Check if both safety gears worked at the same time. If not, the safety gear synchronization must be readjusted.
- After a few centimeters, the car or counterweight should be caught by the pair of safety gears.
- To crosscheck the function of the safety gear, the ropes have to slip in the traction sheave when the motor is driven.
- The safety gear contact must respond.

- Release the safety gear by running up the car or counterweight. Check that the actuating mechanism and the safety gear contact have returned to their initial positions.



The dynamic safety gear test can be done when the function test is shown to be ok.

If there isn't a correct gripping check the following with the elevator data:

- Mass to be gripped
- Tripping speed
- Guide rail dimensions and manufacture
- Guide rail condition (dry or oiled)
- Check the functionality of the synchronization



If the gripping after checking the above mentioned points is not correct, the safety gear must be replaced (please contact WITTUR).

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.15
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

4.2 Dynamic functions test



Nobody should be in the lift car, on the car roof or in the lift shaft when carrying out test runs or functions tests!

General notes:

Each gripping test has to be documented and a copy of the test report should remain in the elevator book.



After each test or activation of the safety gear check that there are no defects that can impair the normal run of the elevator.



Change the safety gear if there is a damage on it. A visual check is sufficient.



It is recommended to do the test near a door, to unload the weights and make it easier to lift up the elevator after testing the safety gears.

- If the car does not stop after 1-2 seconds close the brake immediately.
- Try to drive the car down to check that the safety gear has engaged (suspension ropes should slide on the traction sheave).

Method B - Gripping test with rated load

- 100% of the rated load in the car
- gripping speed = tripping speed of the over-speed governor



Always ensure that the travelling height is high enough to keep the car from running onto the buffer.

Three persons are required for the test. The first-person keeps the machine brake open. The second person monitors the speed of the elevator with a manual tachometer. The third person observes the distance to the pit. His task is to notify when the machine brake must be closed if the safety gear does not grip within safe distance to the pit. After switching the power OFF, if the safety gear does not grip within the value of nominal speed +2 seconds close the machine brake. For example, if the nominal speed is 3m/s the safety gear must grip within 5 seconds.

4.2.1 Gripping test for car safety gear

Method A - Gripping test with overload

- 125% of the rated load in the car
- gripping speed = nominal speed or lower
- Secure the counterweight safety gear (if any) by tying the safety gear lever up. This prevents unintended gripping of the counterweight safety gear due to jumping of the counterweight.
- Place test weights (equal to 125% of the rated load) inside the car. Distribute the weights evenly.
- Drive the car down with nominal or lower speed, keep the machine brake manually open. After reaching the test speed activate the tripping function of the overspeed governor at the door zone.

- Secure the counterweight safety gear (if any) by tying the safety gear lever up. This prevents unintended gripping of the counterweight safety gear due to jumping of the counterweight.
- Place test weights (equal to 100% of the rated load) inside the car. Distribute the weights evenly.

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.16
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

Gearless elevator:

- Switch the main power OFF. Open the machine brake manually and let the car accelerate to the tripping speed of the overspeed governor. The overspeed governor should trip, which will engage the safety gear and stop the car.



Do not let the car run on the buffer.

Geared elevator:

- Accelerate the car with the hoisting motor to the nominal speed, keep the machine brake open manually, switch the main power OFF and let the car accelerate to the tripping speed of the overspeed governor. The overspeed governor should trip, safety gear engage and car stop. If the car does not stop after 1-2 seconds close the brake immediately.



Do not let the car run on the buffer.

- Try to drive the car down to check that the safety gear has engaged (suspension ropes should slip on the traction sheave).

- Drive the counterweight down with nominal or lower speed and keep the machine brake manually open.
- After reaching the test speed activate the tripping function of the overspeed governor.
- If the car does not stop after 1-2 seconds close the brake immediately.
- Try to drive the counterweight down to check that the safety gear has engaged (suspension ropes should slide on the traction sheave).

Method C2 - Gripping test with overspeed

- empty car
- counterweight frame loaded with required number of filler weights
- gripping speed = tripping speed of the overspeed governor



Always ensure that the travelling height is high enough to keep the counterweight from running onto the buffer.

4.2.2 Gripping test for counterweight safety gear



Always check that the filler weights are secured in place before the test.



With geared elevators, if the elevator does not accelerate to the tripping speed of the overspeed governor, test the safety gear with nominal speed (according to test method C1).

Method C1 - Gripping test with nominal speed or lower

- empty car
- counterweight frame loaded with required number of filler weights
- gripping speed = nominal speed or lower
- Secure the car safety gear by tying the safety gear lever up. This prevents unintended gripping of the car safety gear due to jumping of the car.

- Secure the car safety gear by tying the safety gear lever up. This prevents unintended gripping of the car safety gear due to jumping of the car.

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.17
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

Gearless elevator:

- Switch the main power OFF. Open the machine brake manually and let the counterweight accelerate to the tripping speed of the overspeed governor. The overspeed governor should trip, which will engage the safety gear and stop the counterweight.



Do not let the counterweight run onto the buffer.

Geared elevator:

- Accelerate the counterweight with the hoisting motor to the nominal speed, keep the machine brake open manually, switch the main power OFF and let the counterweight accelerate to the tripping speed of the overspeed governor. The overspeed governor should trip, safety gear engage and counterweight stop.



Do not let the counterweight run onto the buffer.

- Try to drive the counterweight down to check that the safety gear has engaged (suspension ropes should slide on the traction sheave).

4.2.3 Checking safety gear, car and counterweight and returning the elevator to normal drive

- Release the safety gear by driving the car or counterweight up.
max. Force to lift the elevator after gripping:

$$F = (K + T + L + 0,3 \times F_{\max} - m_{\text{cwt}}) \times g$$

F lifting force [N]
 K mass of the car[kg] (incl. doors, ...)
 T mass of the frame[kg]
 L mass inside the car[kg] (0-125% Q)
 F_{max} ... mass to be gripped [kg]
 m_{cwt} ... mass of counterweight [kg]
 g gravity 9,81 [m/s²]

- Remove test weights (if applicable).
- Reset the overspeed governor (if needed).
- Remove temporary securing of the safety gear (if applicable).
- Check from the gripping marks if left and right safety gear gripped at almost the same height.

4.2.4 Visual checks after a safety gear test

- Check that the inclination of the car, car sling or counterweight frame, in any direction, is not more than 5% (for example car floor is not horizontal or car entrance is not parallel with landing door entrance). A visual check is sufficient.
- Safety gear:
 Drive the car to the lowest floor and check from the pit following items:
 - existence of tripping wedge
 - existence of brake lining
 - visual defects of safety gear parts
 - defects on the Synchronisation resp. governor linkage
 - defects on the safety gear housing
- Check that the actuating mechanism and the safety gear contact have returned to their initial positions



If there is any defect the safety gear must be replaced!



After the safety gear test the burrs must be removed from the guide rails.



If deviations from the permitted limits had been noticed during safety gear test please contact us at WITTUR.

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.18
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

4.3 Braking mark

4.3.1 Measuring of braking mark

The braking mark is measured on the side of the tripping wedge.



If the braking marks didn't have the same length on the left and right side, take the shorter measurement.

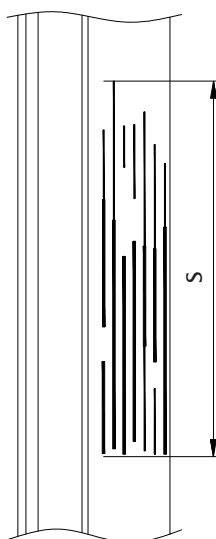


The different length between the two braking marks must be less than 35mm.



As long, as the general appearance of the scratch patterns on the different sides are similar, slightly different scratch patterns on the different sides are acceptable (caused e.g. by the guide rail surface evenness) if the test is done according manual and the length of the brake mark is within the limits.

s = length of the braking mark



4.3.2 Check of gripping distance "s"

Tolerated brake length has to be defined by the system distributor. Check system operating manual for brake distance values. If no tolerated brake distances are defined by the system distributor, the tables from "ANNEX A" can be used as a reference.

Read the minimum and maximum tolerated brake distance from the belonging table based on the weight situation of the lift.

- If the braking distance "s" is within the tolerated values, the safety gear is set correctly!
- If the gripping distance "s" is not in the tolerated distance, please check:
 - if the guide rails and the brake-lining are cleaned and nonfat
 - if the mass of the cabin accords with the order

If the failure could get solved, you have to repeat the test after the correction work.

- If the braking distance "s" is out of the tolerated values again, the safety gear must be replaced (please contact WITTUR).

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.19
Datum/date 15.05.2021
Stand/version H
Geprüft/approved WAT/MZE

5 Maintenance, inspection and repair

5.1 Maintenance and inspection

The progressive type safety gear CSGB-01/CSGB-02 is basically maintenance free. The whole installation is designed so that no large maintenance operations have to be carried out during damage free operation of the installation.

Inspection checks must be carried out at regular intervals (minimum once a year with each service) to guarantee safe operation.

A static function test must be performed periodically (see section 5.2 "Periodical tests").

Alterations, damage or other irregularities should be reported, and repaired if possible. Frequent servicing and control checks not only make operation of the installation safer, but also ensure long and reliable service life.

It is recommended that control checks and servicing be carried out before legally prescribed functional tests (e.g. before TÜV tests).



The lift installation must be immediately taken out of use should any damage or irregularities arise which could possibly impair operational safety.



Please contact us at WITTUR if you have any problems or queries.



Maintenance work should be expertly carried out with utmost care in order to guarantee safe installation operation.

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.20
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

5.1.1 General



When sliding guides shoes are used, clean the installation (the sliding guide shoes too) and if necessary also the safety gear. Then apply a thin coating of the guide rail oil is to the guide rails. When roller guide shoes are used the guide rail must not be lubricated at all.

Operation temperature [°C]	Viskosity
-5 ... +55	ISO VG 68-320

Tab. 1: Lubricant requirements

5.1.2 Maintenance and inspection check list

- Check brake lining/guide rail for free running and adjust if necessary (see chapter 3.5)
- Check brake lining for damage or high degree of wear.
- Check state of safety gear and neighboring components for damage, deformation or heavy oxidation (rust).
- Check that the tripping wedge can move freely.
- Check actuating mechanism and rope connection for free movement/proper functioning.
- Check the complete synchronization.
- Check synchronicity of left and right safety gear and adjust if necessary (see chapter 3.5)
- Check safety gear contact for function/clearance and adjust if necessary.
- Clean system if dirt has built up.
- Check safety gear for cleanliness*).



*) excessive dirt: cuttings, oil, guide rails protective coatings etc. on the safety elements (tripping wedge, brake lining). If necessary clean by use of appropriate cleaning agent.

5.1.3 Cleaning of guide rails

Any dust or dirt on the guide rails can have influence to the friction between the guide rail and the safety gear. This means that the guide rails must be cleaned carefully whenever the dirt becomes visible on the guide rails or in minimum once per year.



The cleaning of the guide rail must be done with a disc brake cleaner or a similar fluid e.g. De-Solv-It 1000 degreaser,.... . It is important that the cleaning agent does not leave any residue on the guide rail.



Mechanical cleaning like filing, grinding is not permitted.

Only the marks from the catch elements caused during safety gear activation may be removed with a file or a scraper.

5.2 Periodical tests

The standard levels of periodical tests should not be higher than the standards of the tests before installation.

These periodical tests are not allowed to cause wear or stresses that impair the operation reliability of the elevator. The tests must be done with empty car and nominal speed (or country-specific requirements with reduced speed). To crosscheck the function of the safety gear, the ropes have to slip in the traction sheave when the motor is driven. If the test has been completed successfully there is no need to control the braking marks.



The reset of the safety gear must be done by an expert person.

Each gripping test has to be documented and a copy of the test report should remain in the elevator book.

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.21
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

5.3 Operational life time of the safety gears



After a defined number of grippings (shown in the table below) the complete safety gear pair has to be changed!

For each gripping, a prescribed "energy value" has to be subtracted from safety gear energy potential over lifetime. Static grippings (<0,3m/s) do not count for safety gear lifetime. Energy values to be subtracted are shown in the table below:

Test Method (acc. chapter 4.2)	v_g [m/s]	energy value [points]
A C1	$\leq 1,00$	2
	1,01 ... 2,00	3
B C2	$\leq 1,65$	2
	1,66 ... 2,63	4
Car side safety gear without load	$\leq 1,00$	1
	1,01 ... 2,00	2

Tab. 2: Operational life time CSGB-01

Test Methode (acc. chapter 4.2)	v_g [m/s]	energy value [points]
A C1	$\leq 1,00$	2
	1,01 ... 2,50	3
	2,51 ... 3,00	4
B C2	$\leq 1,65$	2
	1,66 ... 3,55	5
	2,51 ... 4,21	6
Car side safety gear without load	$\leq 1,00$	1
	1,01 ... 2,50	2
	2,51 ... 3,00	3

Tab. 3: Operational life time CSGB-02

Änderungen vorbehalten!

Total energy potential of a new safety gear:

-CSGB-01: 48 points

-CSGB-02: 48 points

Example CSGB-01 (car side mounted):

-2 grippings with 1,5 m/s(without load) and 5 grippings with 0,8m/s(A) since installation:

-Value to be subtracted: $2 \times 2 + 5 \times 2 = 14$

-Residual safety gear energy potential: $48 - 14 = 34$

The safety gear has to be replaced, as soon as the residual safety gear energy potential is lower than the value which would be consumed during an emergency tripping event(depending on highest elevator tripping speed).

v_g ... gripping speed:

- at method A, C1 or car side safety gear without load, v_g = nominal speed
- at method B or C2, v_g = tripping speed of overspeed governor

5.4 Carrying out repairs



As a rule, the safety gear should neither be taken apart or altered in any other way (sealing wax). This also applies to repairs. An exception to this is the synchronization (e.g. due to reconstruction work etc). Condition for this, is that the process is carried out properly and functioning is in no way compromised.



It is forbidden to replace faulty or worn parts of the safety gear yourself.

The reasons are:

- conditions of liability and technical safety
- only original replacement parts may be installed (these are available from manufacturer only).
- repairs are carried out only in pairs and are checked before return.



Operation of the system without the safety gear, even for short periods of time, is forbidden.

Subject to change without notice!

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions


Blatt/sheet PM.7.002505.EN.22
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

Permitted repair work:

Repairs to the safety gear system which do not directly affect the safety gear (e.g. synchronization, safety gear contact, etc.) must be carried out locally. In other words, all procedures involved in initial installation are also included in the repairs and maintenance schedule.


Such repair work in the safety system must, of course, be carried out correctly and with utmost care, in order to guarantee long-term safe operation of the system.

owner of the lift and the company having executed the repair/ modernization.

Observe the country-specific laws, directives, standards and guidelines for the disposal. Observe the  Please contact WITTUR if for any reason something is unclear, or you encounter damage that cannot be repaired with the help of these instructions.

country-specific laws, directives, standards and guidelines for the disposal.

5.5 Disposal of waste

 Lubricants, oils and other dangerous substances or materials which pollute the environment must be disposed of in conformity with the regulation. Parts, components and subsystems, which are replaced during a repair and/or modernization, must be disposed of according to the agreement between the

owner of the lift and the company having executed the repair/modernization.

5.6 Spare parts

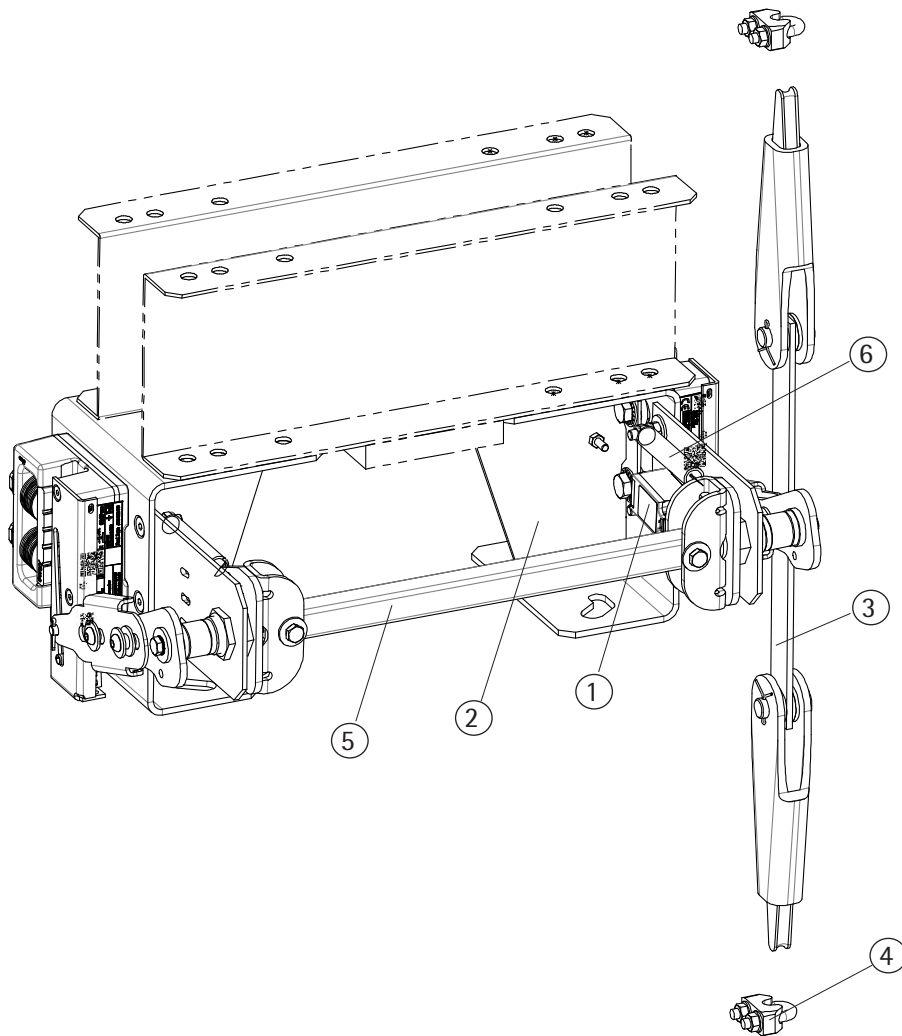
Pos.	Component	Spare part ... used	Number ...	Art. No.
1	Safety gear contact	Bernstein I88-U1ZW IP54	1	265244
2	Safety gear housing	CSGB-01 CSGB-02	2	1005633A01
3	Rope hitch (incl. rope clips - 2 pcs)	rope diam. 6-6,5 mm	1	0904511A01
		rope diam. 7-8 mm	1	0904511A02
		rope diam. 9-11 mm	1	0904511A03
4	Rope clip	S6,5 DIN1142 rope diam. 6-6,5 mm	1	259316
		S8 DIN1142 rope diam. 7-8 mm	1	256349
		S10 DIN1142 rope diam. 9-11 mm	1	252042
5	Synchr. tube	CSGB-01 CSGB-02	1 1	1035414P01 1035414P02
6	Spring	CSGB-01/02	2	903748H01/P01
		CSGB-01/02	2	1005631P01

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.23
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE



As a rule: the safety gear itself must not be taken apart or altered in any way! This also applies to repairs. The complete safety gear pair has to be changed.

Index Issue	Datum Date	Beschreibung der Änderung Description of change	CR
C	06.11.2015	CSGB-02 added and brake mark definition changed	CRW-5189
D	07.04.2016	title page and type label updated, add last page	CRW-6014
E	23.05.2016	gripping distance tables, test methods updated	CRW-6271
F	23.01.2018	gripping distance tables updated, Nominal speed removed	CRW-8316
G	15.10.2018	CSGB-02 synchronisation and housing new design added, CSGB-02 range extension added, pictures updated, Annex A added,	CRW-7739
H	23.01.2018	CSGB-01&CSGB-02 update, operational lifetime new defined	CRW-11096

Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.24
Datum/date 15.05.2021
Stand/version H
Geprüft/approved WAT/MZE

ANNEX A

The following tables are showing the tolerated gripping distance depending on test method and tripping speed.

The table contains generic values based on the following assumptions:

- CSGB-01/CSGB-02 is the only active braking element
- Rope mass, compensation ropes, pulleys and motor without mass and inertia
- Mass of empty car / Rated load ratio (P/Q) between 0,6 and 2
- Balancing (b) between 40 and 50%

Note that the brake distance can differ from the calculated values by several parameters:

Additional brake forces as motor brake, shaft efficiency (friction) or motor short circuit can shorten the gripping distance.

High inertia from pulleys, motor, ropes and compensation means can cause a longer gripping distance.

Depending on the test method and the position in the shaft the mass of the empty car / rated load ratio (P/Q) and the balancing (b) as well as the unbalanced rope mass can cause a longer or a shorter gripping distance.

Example:

Test method A

Medium Car: P/Q=0,81-1,2

P.....mass of empty car (incl. sling and door)

Q.....rated load

Test speed:

$$v_{\text{test}} = 1,6 \text{ m/s}$$

The braking distance:

$$s = 25 \text{ cm}$$

The table shows that the value for the braking distance "s" is in the tolerated values - i.e. the braking mark is OK (the braking distance for $v_{\text{test}} = 1,6 \text{ m/s}$ is min. 22,4cm and max. 35,7 cm).



Intermediate test speed values must be rounded up and down.

Test speed:

$$v_{\text{test}} = 1,65 \text{ m/s}$$

Use $v_{\text{test}} = 1,7 \text{ m/s}$ in the belonging table.

Test speed:

$$v_{\text{test}} = 1,64 \text{ m/s}$$

Use $v_{\text{test}} = 1,6 \text{ m/s}$ in the belonging table.



Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.25
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

Light Car: P/Q = 0,6-0,8; b=40-50%

vtest (m/s)	Tolerated brake distance					
	Method A		Method B		Method C1/C2	
	Min. [cm]	Max. [cm]	Min. [cm]	Max. [cm]	Min. [cm]	Max. [cm]
0,5	4,5	10,0	4,3	9,4	3,9	9,5
0,6	5,2	11,4	4,8	10,4	4,3	10,5
0,7	6,0	12,9	5,5	11,7	4,8	11,8
0,8	7,0	14,8	6,3	13,1	5,3	13,3
0,9	8,0	16,8	7,1	14,7	5,9	14,9
1,0	9,2	19,1	8,1	16,5	6,6	16,8
1,1	10,5	21,7	9,2	18,5	7,4	18,9
1,2	11,9	24,4	10,3	20,7	8,2	21,1
1,3	13,4	27,5	11,6	23,1	9,2	23,6
1,4	15,1	30,7	13,0	25,7	10,1	26,2
1,5	16,9	34,2	14,5	28,4	11,2	29,1
1,6	18,8	38,0	16,0	31,4	12,3	32,1
1,7	20,9	42,0	17,7	34,5	13,5	35,3
1,8	23,0	46,2	19,5	37,8	14,8	38,8
1,9	25,3	50,7	21,4	41,4	16,1	42,4
2,0	27,7	55,4	23,4	45,1	17,6	46,2
2,1	30,3	60,4	25,5	49,0	19,1	50,2
2,2	32,9	65,6	27,7	53,1	20,6	54,4
2,3	35,7	71,1	30,0	57,4	22,3	58,9
2,4	38,6	76,8	32,4	61,8	24,0	63,5
2,5	41,6	82,7	34,9	66,5	25,8	68,3
2,6	44,8	88,9	37,5	71,3	27,6	73,3
2,7	48,1	95,3	40,2	76,4	29,5	78,5
2,8	51,5	101,9	43,0	81,6	31,5	83,8
2,9	55,0	108,8	45,9	87,0	33,6	89,4
3,0	58,6	116,0	48,9	92,7	35,8	95,2
3,1			52,0	98,5	38,0	101,2
3,2			55,2	104,5	40,3	107,4
3,3			58,5	110,7	42,6	113,7
3,4			61,9	117,0	45,1	120,3
3,5			65,4	123,6	47,6	127,1
3,6			69,1	130,4	50,2	134,0
3,7			72,8	137,3	52,8	141,2
3,8			76,6	144,4	55,6	148,5
3,9			80,5	151,8	58,4	156,1
4,0			84,5	159,3	61,2	163,8
4,1			88,7	167,0	64,2	171,8
4,2			92,9	174,9	67,2	179,9

P/Q = Mass of empty car (incl. sling and door) / Rated loadRatio
 b = Balancing



Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.26
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

Medium Car: P/Q = 0,81-1,2; b=40-50%

vtest (m/s)	Tolerated brake distance					
	Method A		Method B		Method C1/C2	
	Min. [cm]	Max. [cm]	Min. [cm]	Max. [cm]	Min. [cm]	Max. [cm]
0,5	4,5	9,8	4,3	9,3	3,9	9,3
0,6	5,2	11,0	4,8	10,3	4,3	10,4
0,7	6,0	12,5	5,5	11,6	4,8	11,6
0,8	6,9	14,2	6,3	12,9	5,3	13,0
0,9	7,9	16,1	7,1	14,5	5,9	14,6
1,0	9,0	18,2	8,1	16,3	6,6	16,4
1,1	10,3	20,5	9,2	18,2	7,4	18,4
1,2	11,7	23,1	10,3	20,4	8,2	20,5
1,3	13,2	25,9	11,6	22,7	9,2	22,9
1,4	14,8	28,9	13,0	25,2	10,1	25,4
1,5	16,6	32,2	14,5	27,9	11,2	28,1
1,6	18,4	35,7	16,0	30,8	12,3	31,0
1,7	20,4	39,3	17,7	33,8	13,5	34,1
1,8	22,5	43,3	19,5	37,1	14,8	37,4
1,9	24,7	47,4	21,4	40,5	16,1	40,9
2,0	27,1	51,8	23,4	44,2	17,6	44,6
2,1	29,6	56,4	25,5	48,0	19,1	48,4
2,2	32,2	61,2	27,7	52,0	20,6	52,4
2,3	34,9	66,2	30,0	56,1	22,3	56,7
2,4	37,7	71,5	32,4	60,5	24,0	61,1
2,5	40,6	76,9	34,9	65,1	25,8	65,7
2,6	43,7	82,7	37,5	69,8	27,6	70,5
2,7	46,9	88,6	40,2	74,7	29,5	75,4
2,8	50,2	94,7	43,0	79,8	31,5	80,6
2,9	53,7	101,1	45,9	85,1	33,6	86,0
3,0	57,2	107,7	48,9	90,6	35,8	91,5
3,1			52,0	96,3	38,0	97,2
3,2			55,2	102,1	40,3	103,1
3,3			58,5	108,2	42,6	109,2
3,4			61,9	114,4	45,1	115,5
3,5			65,4	120,8	47,6	122,0
3,6			69,1	127,4	50,2	128,7
3,7			72,8	134,2	52,8	135,5
3,8			76,6	141,1	55,6	142,6
3,9			80,5	148,3	58,4	149,8
4,0			84,5	155,6	61,2	157,2
4,1			88,7	163,1	64,2	164,8
4,2			92,9	170,9	67,2	172,6

P/Q = Mass of empty car (incl. sling and door) / Rated loadRatio
 b = Balancing



Progressive Type Safety Gear

CSGB-01 / 02

Operating instructions

Blatt/sheet PM.7.002505.EN.27
 Datum/date 15.05.2021
 Stand/version H
 Geprüft/approved WAT/MZE

Heavy Car: P/Q = 1,21-2,0; b=40-50%

vtest (m/s)	Tolerated brake distance					
	Method A		Method B		Method C1/C2	
	Min. [cm]	Max. [cm]	Min. [cm]	Max. [cm]	Min. [cm]	Max. [cm]
0,5	4,5	9,6	4,3	9,3	3,9	9,3
0,6	5,1	10,7	4,8	10,3	4,3	10,3
0,7	5,8	12,0	5,5	11,4	4,8	11,4
0,8	6,7	13,6	6,3	12,8	5,3	12,8
0,9	7,7	15,3	7,1	14,3	5,9	14,3
1,0	8,8	17,3	8,1	16,0	6,6	16,0
1,1	10,0	19,4	9,2	17,9	7,4	17,9
1,2	11,4	21,8	10,3	20,0	8,2	20,0
1,3	12,8	24,4	11,6	22,3	9,2	22,3
1,4	14,4	27,2	13,0	24,7	10,1	24,7
1,5	16,1	30,1	14,5	27,3	11,2	27,3
1,6	17,9	33,3	16,0	30,1	12,3	30,1
1,7	19,8	36,7	17,7	33,1	13,5	33,1
1,8	21,8	40,3	19,5	36,3	14,8	36,3
1,9	24,0	44,1	21,4	39,6	16,1	39,6
2,0	26,3	48,1	23,4	43,2	17,6	43,2
2,1	28,6	52,3	25,5	46,9	19,1	46,9
2,2	31,1	56,8	27,7	50,8	20,6	50,8
2,3	33,8	61,4	30,0	54,8	22,3	54,8
2,4	36,5	66,2	32,4	59,1	24,0	59,1
2,5	39,3	71,3	34,9	63,5	25,8	63,5
2,6	42,3	76,5	37,5	68,1	27,6	68,1
2,7	45,4	82,0	40,2	72,9	29,5	72,9
2,8	48,6	87,6	43,0	77,9	31,5	77,9
2,9	51,9	93,5	45,9	83,0	33,6	83,0
3,0	55,3	99,5	48,9	88,4	35,8	88,4
3,1			52,0	93,9	38,0	93,9
3,2			55,2	99,6	40,3	99,6
3,3			58,5	105,5	42,6	105,5
3,4			61,9	111,5	45,1	111,5
3,5			65,4	117,8	47,6	117,8
3,6			69,1	124,2	50,2	124,2
3,7			72,8	130,8	52,8	130,8
3,8			76,6	137,6	55,6	137,6
3,9			80,5	144,5	58,4	144,5
4,0			84,5	151,7	61,2	151,7
4,1			88,7	159,0	64,2	159,0
4,2			92,9	166,5	67,2	166,5

P/Q = Mass of empty car (incl. sling and door) / Rated loadRatio
 b = Balancing



WITTUR manufacturing locations

Product manufacturer reference can be found on the product type label.

ARGENTINIA

WITTUR S.A.
Av. Belgrano 2445
Sarandi - Pcia. de Buenos Aires, Argentina

ITALY

WITTUR S.P.A.
Via Macedonio Melloni no 12
43052 Colorno, Italy

AUSTRIA

WITTUR Austria GmbH
Sowitschstrasse 1
3270 Scheibbs, Austria

INDIA

WITTUR Elevator Components India Pvt. Ltd.
Survey nos 45/1B, 3 & 4, Pondur Village
Sriperumbudur - 602 105
Tamil Nadu, India

BRAZIL

WITTUR LTDA
Rodovia Celso Garcia Cid
1406 Cambé Parana, Brazil

SLOVAKIA

WITTUR S.R.O.
Priemyselná ulica 2747/7
963 01 Krupina, Slovakia

CHINA

WITTUR Elevator Components (Suzhou) Co. Ltd.
18 Shexing Road, FOHO Economic Development Zone,
Wujiang City, Jiangsu Province,
P.R. China 215214

SPAIN

WITTUR ELEVATOR COMPONENTS S.A.U.
Polig. Ind. Malpica, Calle E - Parcela 8
50016 Zaragoza, Spain

GERMANY

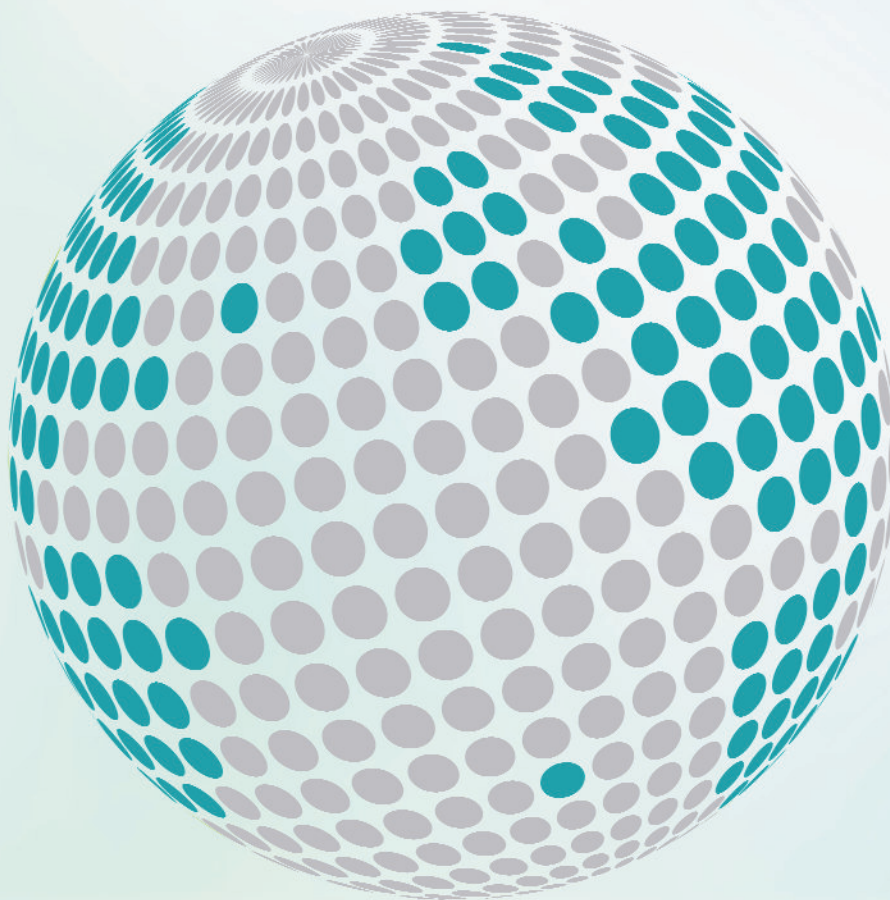
WITTUR ELECTRIC DRIVES GMBH
Offenburger Str. 3
01189 Dresden, Germany

TURKEY

WITTUR Asansör San. ve Tic. A.S.
Y Dudullu Organize - Sanayi Bolgesi n° 13
34776 Istanbul, Turkey



**YOUR GLOBAL PARTNER FOR COMPONENTS,
MODULES AND SYSTEMS IN THE ELEVATOR INDUSTRY**



*safety **in** motion*™

www.wittur.com

More information
about Wittur Group
available on-line.



SELCON®
a WITTUR brand

Liftmaterial
a WITTUR brand

semaTIC®
a WITTUR brand